PERCEPTUAL SYNTHESIS OF AUDITORY SCENES

ABSTRACT OF THE DISCLOSURE

An auditory scene is synthesized by applying two or more different sets of one or more spatial parameters (e.g., an inter-ear level difference (ILD), inter-ear time difference (ITD), and/or head-related transfer function (HRTF)) to two or more different frequency bands of a combined audio signal, where each different frequency band is treated as if it corresponded to a single audio source in the auditory scene. In one embodiment, the combined audio signal corresponds to the combination of two or more different source signals, where each different frequency band corresponds to a region of the combined audio signal in which one of the source signals dominates the others. In this embodiment, the different sets of spatial parameters are applied to synthesize an auditory scene comprising the different source signals. In another embodiment, the combined audio signal corresponds to the combination of the left and right audio signals of a binaural signal corresponding to an input auditory scene. In this embodiment, the different sets of spatial parameters are applied to reconstruct the input auditory scene. In either case, transmission bandwidth requirements are reduced by reducing to one the number of different audio signals that need to be transmitted to a receiver configured to synthesize/reconstruct the auditory scene.